Robinson (A.R.)

HIDROCYSTOMA

BY

A. R. ROBINSON, M. B., L. R. C. P. AND S. (EDIN.)

PROFESSOR OF DERMATOLOGY AT THE NEW YORK POLYCLINIC; ATTENDING PHYSICIAN TO THE NEW YORK CANCER HOSPITAL; MEMBER OF THE AMERICAN DERMATOLOGICAL ASSOCIATION, OF THE NEW YORK DERMATOLOGICAL SOCIETY; PRESIDENT OF THE SECTION FOR DERMATOLOGY AND SYPHILOGRAPHY OF THE NINTH INTERNATIONAL MEDICAL CONGRESS, WASHINGTON, 1887, ETC.

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(With Colored Plate.)

Professor of Dermatology in the New York Polyclinic; Attending Physician to the New York Cancer Hospital, etc.

AT the eighth annual meeting of the American Dermatological Association, held at Highland Falls, in August, 1884, I read a paper upon miliaria and sudamina, and described, among other forms of lesions having a supposed relationship to the sweat gland apparatus, a peculiar eruption seen especially upon the faces of women in middle and advanced life who sweat freely upon that part and who expose it to warm vapor, and hence is not infrequently seen upon the faces of washerwomen, although not confined to them. The portrait accompanying the present article was exhibited at the meeting and examined by all the gentlemen present. The remarks made by me at that time in reference to this disease were based upon a clinical and microscopical study of several cases, as when the artist drew the portrait I had four patients present for his study; and from the original of this portrait, I subsequently, within a few days, removed half a dozen lesions for histological study.

Although the eruption had probably been previously seen by other dermatologists, this was the first time, I believe, that the disease had been studied and described, and hence Dr. Hyde and Dr. Hardaway, who were present at the meeting, in their respective works upon skin diseases refer to it as a form of sudamina described by Robinson.

In my work "Manual of Dermatology" published in 1884, I described the disease under the heading sudamina and also gave a microscopical drawing showing the anatomical seat and character of the lesions.

I have referred to these historical facts in connection with this disease, as some later writers are not aware of them and have given to another the credit of first describing the affection. In 1886, Dr. G. T. Jackson described in the *Journal of Cutaneous and Venereal Diseases* under the title of dysidrosis of the face, an example of the affection, the paper being illustrated by a good chromo-lithograph of the eruption. It was probably the existence of this portrait that led most subsequent writers —only a few have written upon the subject—to refer to the disease as an affection of the face described by Dr. Jackson, for, had they read the article carefully they would have noted that he says that the eruption in his case "corresponded in its location, appearance and etiology to the sudamina of the face of Robinson, and is doubtless the same disease."

The affection is not a very infrequent one in New York city as I have certainly seen not less than thirty or forty since 1884. I do not know the exact number as I do not keep statistics of all my cases of skin diseases, preferring, if I can do so, to make a complete study of half a dozen cases of one disease to an analysis of 5,000 cases for showing relative frequency of this or that disease. As all the cases of this disease seen by me have been so similar in appearance and history, I have concluded that it constitutes a clinical entity, and on account of its frequency and character deserves or requires a special name.

All of the cases which have come under my observation, with one exception, have been in women in middle life or older, although there are no reasons, as far as I know, why it should not appear in quite young persons, and perhaps does in some cases. I saw one case this year in a young man, 28 years of age, in whom the eruption was limited to the lower half of the right side of the nose. In the majority of the cases the women have been doing general housework, housewives doing cooking, washing, etc., and whilst some of them did but little if any washing, the rule was that they attributed the eruption, or a great aggravation of an already existing one, to washing, as that kind of work, excessive exercise in a warm vapor atmosphere caused them to sweat very much. I have seen it also in cooks who did no washing, also in persons who did very little cooking or washing, and finally also in those who neither cooked

nor washed. In my cases, however, the rule was that the disease appeared in middle-aged women who habitually perspired greatly, and who did washing over tubs, thus exposing the skin of their face to the action of a warm, moist atmosphere. All of the cases have been worse in summer than in winter, and in many of them the eruption would almost, if not entirely, disappear in winter, whilst in others it would entirely disappear during cold weather. In a case described by Hallopeau, and in whom the disease was limited to the nose, the eruption was more severe at the menstrual period than at other times, and it appeared to him to be much influenced by the condition of the nervous system, an emotional state aggravating the condition. In this case the eruption was also worse in summer than in winter.

The eruption usually occurs upon the regions occupied by it in the accompanying portrait, that is, it appears upon the lower part of the forehead, the orbital region, the nose, the cheeks, and often the upper and lower lips and the skin. I have not seen it upon the lower jaw or neck, or upon the rest of the body. In a case reported by Jamieson, of Edinburgh, the eruption was confined to the nose and right side of the forehead, temples and cheek. The woman was 45 years of age, and perspired freely and easily upon the right side of the body, and only on rare occasions and when much excited, to a slight degree upon the left side. When first seen by Dr. Jamieson, there were large beads of perspiration on the right side of the forehead and corresponding cheek, whilst the left side was absolutely dry.

The lesions are either discrete or situated closely to each other, but it is not usual to find them in any considerable number closely crowded together, especially if they are not very numerous. When perhaps 100 to 200 lesions are present—and I have seen such cases—then the lesions over a greater part of the affected area may be closely situated to each other, but when few lesions are present they are usually discrete.

The individual lesions appear as tense, clear, shiny vesicles, obtuse, round or ovoid in form and varying in size from that of a pin head to that of a pea. They are, at first, always deep seated, that is, their base reaches deep into the corium, but on account of their size they are also usually more or less elevated above the general surface. The smaller ones, especially, bear considerable resemblance to a boiled sago-grain. The larger lesions sometimes have a darkish blue tint, which is most marked at the periphery. This is well shown on the chromo-

lithograph. From the drying up of the contents, disappearing lesions may have a whitish appearance like that present in cases of milium. I have not been able to recognize with positiveness the presence of an excretory sweat duct orifice over the central part of an individual vesicle. The skin over the lesions is not

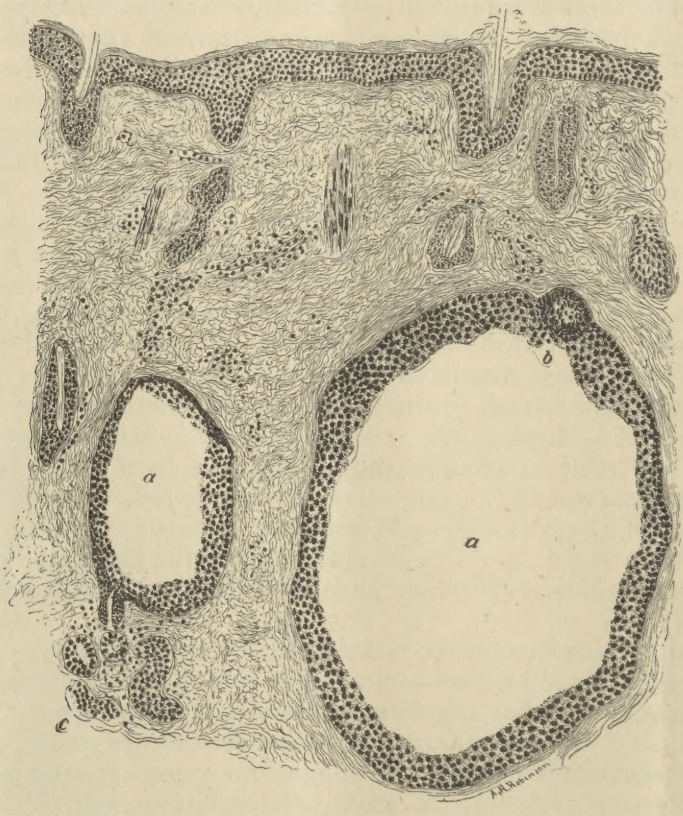

FIG. 1.

(*a*) Large and small cyst; (*b*) excretory sweat duct at place of obstruction; (*c*) coil of sweat gland.

inflamed, and there are no signs of inflammation present in any part of the affected region. If the lesion is a large one—slight circulatory disturbance—a mild hyperæmia is often noticed at its periphery. There are no subjective symptoms, or the eruption may be accompanied by a slight sensation of tension or smarting.

The contents of the vesicles are clear and never change to a yellowish color, but dries up and the lesion disappears, unless mechanically injured, without rupture, often lasting one, two or several weeks, leaving the part in a normal condition or followed by a slight temporary pigmentation. In the late stage of evolution the dried up contents sometimes appear whitish, like in milium. If the vesicles are ruptured the contents are found to be always slightly acid and never alkaline.

Histology. The excised portions of skin were placed in Müller's liquid and afterward treated in the usual way for histological study. In Figs. 1, 2, 3 are shown the different stages in the formation of the vesicles, and also their topography and manner of origin. Microscopical examination of the sections showed the following condition in the different structures of the skin in the active stage of the disease. The corneous layer and the rete mucosum were in an apparently normal condition, that is, the corneous cells appeared unchanged in character and were in their normal relations to each other, whilst in the rete a similar condition was present, the sweat gland passing through it was normal and in no part were there signs of vacuolation or of a degenerative process, or of an excessive transudation of serum into or between the cells. The papillary layer was normal in the early stages, but if the lesion became large sized and approached the rete, as in Fig. 3, the circulation was more or less interfered with from pressure and consequently a few more perivascular leucocytes than normally are seen, were present.

In the upper part of the corium, depending upon the size of the lesion and its duration, the larger the lesion and the longer its duration, a perivascular leucocyte invasion was present in moderate degree, as shown in Fig. 3. The sebaceous glands and hair follicles are normal. In Fig. 3, which represents a well developed lesion, a portion of the vesicle lies in this part of the corium.

In the lower part of the corium and in the subcutaneous tissue, besides normal sweat-glands and hair follicles, the following abnormal conditions were found. The secreting portion of some of the sweat glands have an enlarged lumen from dilatation of the tube and contraction or compression of the epithelial cells against the basement membrane, the lumen being filled with liquid and a granular material resembling that usually seen in normal glands, but in increased amount. As I have observed this condition in cases of simple hyperidrosis, it may be re-

garded, in my opinion, as merely showing marked activity of the physiological process. Other glands showed granular contents without any enlargement of the tubes or dilatation of the lumen. With the exception of those few with enlarged coil tubes, and those ducts connected with the cystic formations of the sweat-glands, both the secretory and excretory portions appeared to be normal. In Fig. 2 I have represented a condition met with in a gland having an enlarged coil tube and dilated lumen. The drawing shows a portion of an excretory duct situated a short distance about the coil portion of the gland, that is, a portion in the lower part of the corium. The part of the duct

FIG. 2.

represented shows some dilation of the duct and lumen the entire length, the change being most marked the further distant from the coil part.

At a the duct is cut across somewhat obliquely, but the size of the lumen is easily recognized as being much wider than in the normal condition, and the contents are abnormally granular in character. The cell collection around the duct is probably a normal condition, as lymphoid corpuscles are always present in considerable numbers around the lower part of the sweat-glands, especially in the coil area. As there was no cyst directly above this dilated duct and within the excretory duct area in any of

the sections examined, it is evident that in Fig. 2 is to be seen a very early stage in the formation of the vesicular lesion of the disease I am describing. Judging from this gland alone it would seem that the lesion arises from obstruction within the lower part of the corium, next the subcutaneous tissue, to the passage to the free surface, of the contents of a sweat gland in an over active functional condition.

In Fig. 1 is shown a section which fortunately included two lesions in different stages of development, and also the connection of both with sweat glands, in the smaller lesion the duct entering at the base of the vesicle and in the larger one leaving it at the upper part. By studying Figs. 1 and 2, it is easy to learn the anatomical relations of the lesions in this disease and see that the vesicles arise from a cystic dilatation of the excretory sweat duct lying within the corium. On the right half of the drawing is seen a small cyst connected with the sweat gland c, and on the left half of the drawing is a much larger cyst connected with the excretory duct seen cut transversely at b. Let us study the character of these two cyst-like formations. At c is seen the coil portion of the gland. Nothing abnormal was to be observed, unless it was that the contents of the lumen were more granular than usual. The short, excretory duct leading to the cyst was perfectly normal, not showing any dilatation like in Fig. 2. The cyst a, was a small one, and appeared to the naked eye a pin head sized, deep seated vesicle. The cyst contents have disappeared but were no doubt a clear liquid of acid reaction as such was the character of all examined in reference to this point. A slight albuminous substance clung to the wall of the cyst. The excretory duct is seen very distinctly entering the cyst at the lowest right hand-corner. The entire wall of the cyst is lined with epithelium.

In the larger cyst no sweat gland is visible in this section, although its special gland was seen in other sections. At the upper part, however, at b, is seen the place where the excretory duct communicates with the cyst. This cyst extends further upward and further downward in the cutis than the smaller one, but it may have commenced at about the same level. The contents of this one have also disappeared. The walls are lined throughout with epithelium as in the smaller lesion. In Fig. 3, is shown under a somewhat lower power another vesicle which has encroached still nearer the epidermis at the same time that it extends downward into the subcutaneous tissue.

This vesicle was larger than the larger one of Fig. 1, but it

also showed disappearance of the contents, and the presence of epithelial cells, which completely lined the cyst wall.

A consideration of the conditions present in Figs 1, 2 and 3, shows that the vesicles arise from dilatation of the excretory duct of the sweat glands at some part of its course within the corium, and that in these lesions the place of formation was in the lower part of the corium. That, however, it is not a passive dilatation as in an ordinary retention cyst is shown by the marked peculiarity, that whether the cyst be large or small, there is such a rapid proliferation of the epithelium lining the

FIG. 3.

Section of vesicle from forehead. (*a*) vesicle ; (*b*) coil of sweat gland : (*c*) fat tissue ; (*d*) hair follicles cut obliquely ; (*e*) epidermis ; (*f*) epithelial cells lining cyst wall ; (*g*) round cell collection.

part of the duct affected, that the entire cyst wall is lined by this epithelium.

Such was the condition formed in six lesions removed in a comparatively early stage of formation. These were not the changes found by Jamieson in his case; but I am satisfied that had he removed an early lesion instead of a very late one, similar changes would have been found. In his sections there were no cysts in the corium and the excretory ducts in this part were normal, as far as could be studied, for the sections did not reach to the gland coil. In the rete he found a vesicle formation of similar structure to that observed in pompholyx (dysi-

drosis of T. Fox), but no connection could be traced between the sweat ducts and the vesicles. From an observation which I will publish within a few months I believe the changes he observed were secondary and not primary, but as his observations differ from mine I have quoted them.

As regards the character of the contents of the vesicles, they are always, in the earlier periods at least, liquid and clear and slightly acid, characters similar to those present in sweat drops upon a clean cutaneous surface. This liquid is collected within an excretory duct deep in the corium and far removed from the blood vessels of the papillæ. The connection of the cysts with the sweat coil is proven by the sections, hence we have here a positive proof that a liquid corresponding in character with sweat as it appears upon the free surface is formed by the sweat glands or excretory duct or by both. The theory, therefore, that the sweat glands are fat-producing glands only and not sweat-producing, cannot be correct when we find such a condition during a state of hyperidrosis. Six years ago I maintained that my sections disproved the theory that sweat comes from the papillary blood vessels and not from the sweat glands and am still satisfied of the correctness of my position at that time.

Why the lesions form is not easily answered. One could say that the duct becomes obstructed by detached epithelium, the result of the excessive hyperidrosis, but the obstruction in that case would probably occur where the lumen is narrowest and elasticity of surrounding tissue least, that is, in the epidermis. Furthermore, the disease is rare, whilst hyperidrosis, at some time or other, is almost universal. It cannot be from any anatomical changes in the epidermis or the lesions would be more superficially seated. It cannot be from the difference in density between the connective tissue of the corium and that of the subcutaneous tissue that causes the lesions to form about the place of union of those parts, for the cyst enlarges subsequently in all directions. The nature of the contents of the vesicles show that the coil part of the glands is normal or acid sweat could not form so rapidly. The abnormal condition must reside primarily in the excretory tube or in the surrounding connective tissue, causing obstruction to the outflow of the sweat.

Diagnosis.—The eruption bears some resemblance to sudamina crystallina, pompholyx (dysidrosis) eczema and adenoma of the sweat glands.

Sudamina, as may be seen by the accompanying Fig. 4 is caused by retention of sweat within the corneous layer, the cells forming the wall of the duct becoming separated and allowing the sweat to infiltrate the corneous layer and pushing aside the cells, collect so as to form a dewdrop-like lesion. Clinically, the lesions of sudamina crystallina appear but very rarely upon the face, they are more superficially seated and have a thinner covering. The nature of the contents is similar in both cases and both are caused by retention of sweat within an excretory duct area, and hence, in my first paper, I

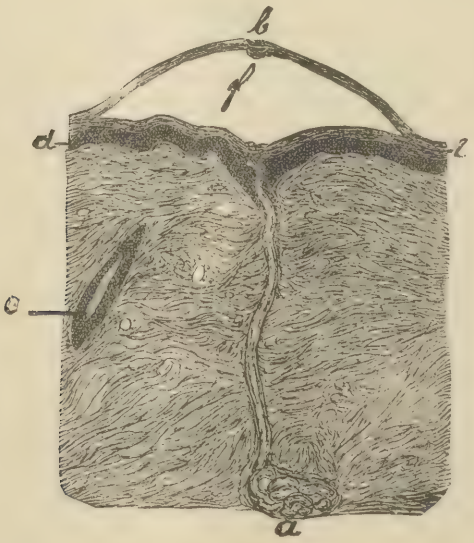

FIG. 4.

Vesicle of sudamina crystallina—(*a*) sweat gland ; (*b*) roof of vesicle, formed of corneous lamellæ, and showing at (*b*) the orifice of the sweat duct ; (*c*) hair follicle, cut obliquely; (*d*) rete ; (*e*) corneous layer ; (*f*) vesicle.

preferred to describe it as a form of sudamina, giving this term a wider meaning than it previously had, making it synonymous with any lesions caused by retained sweat, and then using qualifying words as crystallina, miliaria, etc., for different clinical forms. As, however, sudamina is not a lesion caused by sweat retained within an excretory duct, and as, furthermore, in the disease I have described, there is a rapid proliferation of epithelial cells in sufficient numbers to always line the cyst wall, as finally the disease has definite clinical character and represents a

clinical entity, it appears to me to be advisable not to use the term sudamina of the forehead, as I have already done, but to coin a new one for the affection.

After taking into consideration the method of formation and the anatomical character of the lesions, my friend, Dr. Frank P. Foster, agreed with me that the term hidrocystoma would not be subject to any special objections and would be preferable to a long, unspeakable word which perhaps would better represent the pathological process. The lesion is a cyst but not a pure retention cyst, and therefore the term cystoma is not altogether inapplicable.

From eczema the eruption is diagnosed by the acid reaction of the contents, and by the absence of inflammation and subsequent crusting. The nature of the contents and the clinical history make the diagnosis from adenoma of the sweat-glands easy, but in a photographic representation there is much resemblance.

Drs. Jackson, Jamieson, Rosenthal and Hallopeau have all described the disease under the name of dysidrosis. The disease, however, corresponds in no respect with dysidrosis, as described by Tilbury Fox, Hutchinson, myself and others, except that in both the vesicles may have the boiled-sago-grain appearance. The disease dysidrosis or pompholyx may be defined as an acute inflammatory affection, characterized by the symmetrical development upon the palms of the hands, and generally also upon the soles of the feet, of deep-seated, clear vesicles, usually grouped, which afterward become opaque, and in a few days disappear by rupture or absorption, leaving a non-eczematous skin behind. As the disease I have described in this article bears no relation either from a clinical or an anatomical standpoint with dysidrosis, the term should not have been used for the affection, even if it were clear that the condition did represent one of difficult sweating, for it was clearly not the same disease already described under that name. Within a few weeks I will take up the subject of dysidrosis (pompholyx) and show once more that the vesicles in that disease do not come from the sweat glands, and at the same time discuss some other interesting conditions I have lately studied in connection with sweat gland diseases.

248 West 42d Street.